

Claims:

1. Fire resistant polyolefin blends which comprise of a blend of (i) a polyolefin base polymer (ii) melamine or its derivative (iii) a flame retardant and (iv) a compatibilizer all put together constitute 100 wt% of the blend.
2. Blends as claimed in claim 1, wherein the said polyolefin comprises polypropylene homopolymer, polyethylene, more preferably a high density polyethylene, random as well as block copolymers of propylene and ethylene.
3. Blends as claimed in claim 1, wherein the said polyolefin polymer has a melt flow index in the range of 12 to 40 g/10min. when tested at 230°C at 2.16 kg load (according to ASTM D1238).
4. Blends as claimed in claim 1, wherein the said melamine derivative is selected from melamine cyanurate or melamine phosphate.
5. Blends as claimed in claims 1 to 4, wherein the said melamine or its derivative is present in the concentration range 10 to 50 wt%.
6. Blends as claimed in claims 1 to 5, wherein the said flame retardant is selected from magnesium hydroxide and / or aluminum trihydroxide, zinc borate and ammonium phosphate.
7. Blends as claimed in claims 1 to 6, wherein the said flame retardant is present in the concentration range of 2 to 10 wt%.
8. Blends as claimed in claims 1 to 7, wherein the said compatibilizer comprises a maleic anhydride grafted polypropylene (MAH-g-PP) or an organo silane.
9. Blends as claimed in claims 1 to 8, wherein the said compatibilizer is present in an amount from 0 to 10-wt%.
10. Blends as claimed in any preceding claim, wherein a processing aid such as a fluoroelastomer is present in the concentration range of 1 to 2 wt% over and above the total blend.
11. Blends as claimed in above claims, wherein an antioxidant is present in the concentration range of 0-3 wt% over and above the total blend.
12. A process for preparation of fire-resistant polyolefin blends, which comprise melt mixing of a polyolefin, melamine or its derivative, a flame retardant and a compatibilizer in a Buss co-kneader or a twin screw extruder.

13. A process as claimed in claim 12, wherein the said polyolefin comprises a polypropylene homopolymer, polyethylene, more preferably a high-density polyethylene, random as well as block copolymers of propylene and ethylene.
14. A process as claimed in claim 12, wherein the said polyolefin polymer has a melt flow index in the range of 12 to 40 g/10min. when tested at 230°C at 2.16 kg load (according to ASTM D1238).
15. A process as claimed in any one of claims 12 to 14, wherein the said melamine derivative is selected from melamine cyanurate or melamine phosphate.
16. A process as claimed in any one of claims 12 to 15, wherein the said melamine or its derivative is present in the concentration range 10 to 50 wt%.
17. Processes as claimed in any one of claims 12 to 16, wherein said flame retardant is selected from magnesium hydroxide and / or aluminum trihydroxide, zinc borate and ammonium phosphate.
18. A process as claimed in any one of claims 12 to 17, wherein the said flame retardant is present in the concentration range of 2 to 10 wt%.
19. A process as claimed in any one of claims 12 to 18, wherein the said compatibilizer comprises a maleic anhydride grafted polypropylene (MAH-g-PP) or an organo silane.
20. A process as claimed in any one of claims 12 to 19, wherein the said compatibilizer is present in an amount from 0 to 10-wt%.
21. A process as claimed in any one of claims 12 to 20, wherein said melt mixing is carried out at a temperature in the range of 180 to 250°C in a Buss co-kneader or a twin screw extruder.
22. A process as claimed in claim 21, wherein said kneader / extruder speed is 50 to 100 rpm.
23. An article of manufacture whenever made of a fire-resistant polypropylene blend as claimed in any one of claims 1 to 11.